The brief is UNCLASSIFIED

What is Modeling and Simulation

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PLEASE TURN OFF ALL PORTABLE ELECTRONIC DEVICES

Purpose

- Introduce the basic concepts of Modeling and Simulations (M&S)
- Familiarize all participants in the benefits and limitations of M&S
- Brief TTP for MSTP's implementation of M&S

Training Marines

- Fundamental objective of training Marines is to:
  - Develop
  - Maintain
  - Increase proficiency/skills
- Training can be frustrated by
  - Optempo
  - Competing time demands
  - Lack of resources
    - People
    - equipment
    - facilities

Economy of Resources

- To alleviate shortage of resources for live training the Marine Corps augments training with simulations
  - In particular for Staff training
    - MEFEX, ULCHI FOCUS LENS, UNIFIED ENDEAVOR
  - task specific training
    - Flight Simulators
    - ISMT (Indoor Simulated Marksman Trainer)

- Models and Simulation are not a substitute for training on real equipment or environments
- Rather they make better use of scare resources
  - Cost effective
  - Best bang for the buck

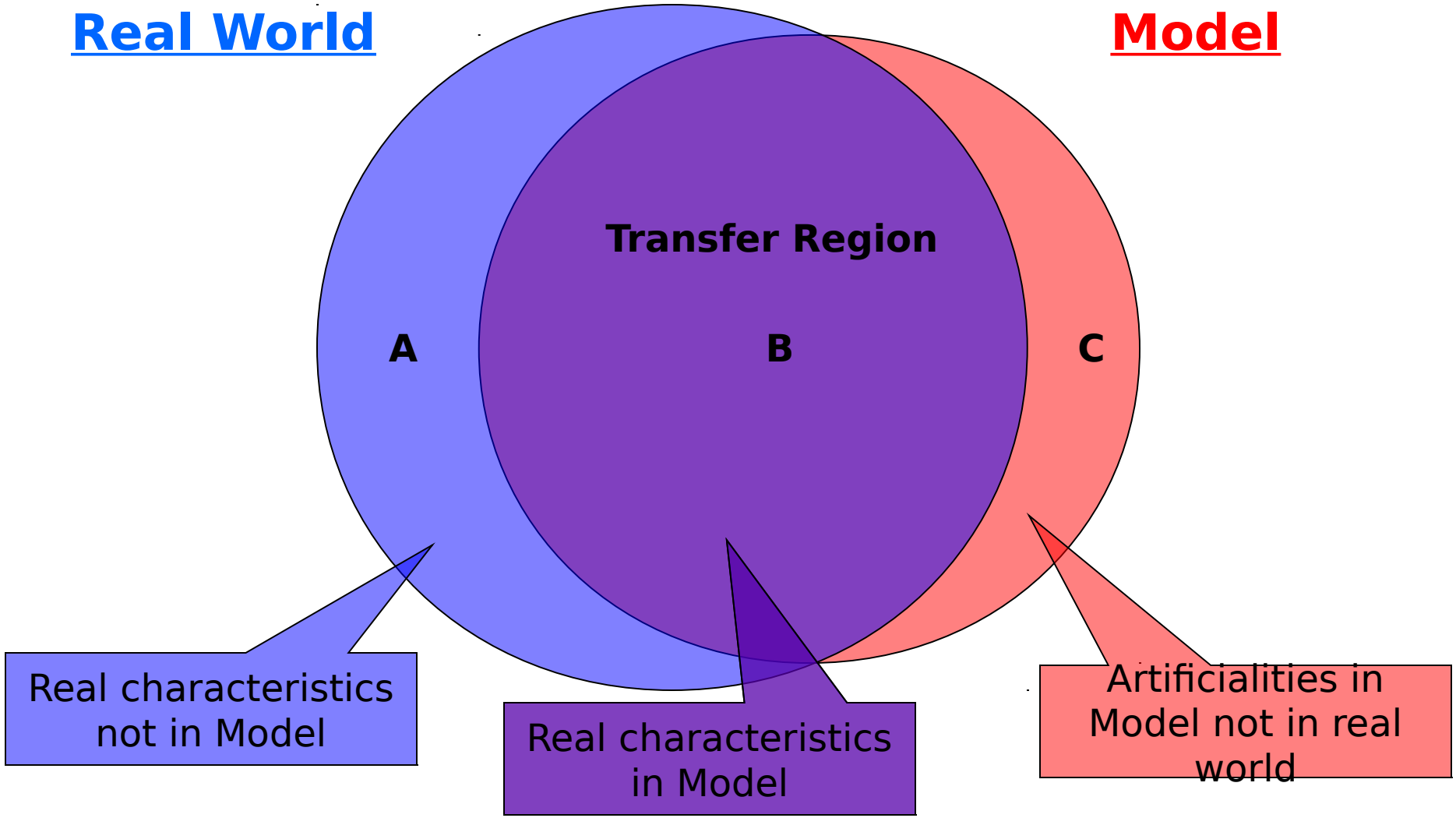
Simulation is imitation

- In its broadest sense, simulation is imitation. We've used it for thousands of years to train, explain and entertain.
- Simulations and models are abstractions of reality.

Definitions

- Often they deliberately emphasize one part of reality at the expense of other parts
- Simulations are the specific application of models to arrive at some outcome
- Models are mathematical, logical, or some other structured representation of reality

Training Task Transfer of a Model



Types of Simulations

- Live Simulation
- Virtual Simulation
- Constructive Simulation

- A simulation also may be a combination of two or more styles.

Live

- ***Live simulations*** typically
  - involve humans and/or equipment and activity in a setting where they would operate for real
  - Time is continuous, as in the real world
  - Think war games with Marines
    - *out in the field*
    - manning real time command posts
    - interactions with aircraft in flight
  - Another example of live simulation is testing a car battery using an electrical tester

Virtual

- ***Virtual simulations*** typically
  - involve humans and/or equipment in a computer-controlled setting
  - Time is in discrete steps, allowing users to concentrate on the important stuff, so to speak
  - A flight simulator falls into this category

Constructive

- ***Constructive simulations***
  - typically do not involve humans or equipment as participants. Units are constructed inside the computer model.
  - Time can be started and paused (game time). The focus can change between time (real world or game) and the proper sequencing of events.
  - MTWS is a Constructive Simulation Model

Simulators

- A simulator is a device that may use any combination of sound, sight, motion and smell to make you feel that you are experiencing an actual situation.
- Some video games are good examples of low-end simulators
  - you have probably seen or played race car arcade games or flight simulator.

Model-based Exercise

- Simulations hold great potential for training people
- People learn better by experience than through reading or lectures
- Simulated experiences can be just as valuable a training tool as the real thing
- When used for training, the model and the design of the exercise combine to accurately recreate "reality" for the training audience based on the training objectives

Model Based Training Exercise

- Insert here

Summary

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Questions

No ? on the end

MSTP

Frame all pictures with a black border

"Questions" slide has motivating picture of your choice